PRICE: $5.00

A39056
REV. 1

INSTRUCTION MANUAL

KEPCO®

131-38 SANFORD AVENUE • FLUSHING, N.Y. 11352 U.S.A.
(212) 461-7000 • TWX #710-582-2631

KEPCO

POWER SUPPLIES

PRR

Model PRR 48-22M

Serial No. P1452.75

instruction manual

The KEPCO equipment described in this instruction manual is of proprietary design, and is licensed under the United States patent rights of Forbro Design Corp.

The contents of this instruction manual are copyrighted. Reproduction of any part may only be made with the specific written permission of KEPCO, Inc. Data subject to change without notice.

KEPCO®

©Kepco, Inc. 1977

KEPCO, INC. • 131-38 SANFORD AVENUE • FLUSHING, N.Y. 11352 U.S.A. • (212) 461-7000 • TWX #710-582-2631 • Cable: KEPCOPOWER NEWYORK

DESCRIPTION (Refer to FIG. 1)

The Kepco PRR group of power supplies are fixed d-c voltage sources delivering approximately 1000 Watts of output power. The design of the PRR supplies is based on Kepco's patented FLUX-O-TRAN ferroresonant power transformer. PRR models can be operated either from domestic 120V a-c, 60 Hz power lines (models without suffix) or from foreign 230V a-c, 50 Hz sources (models with suffix "–50"). PRR power supplies are built-in full-rack width and can be installed directly, or by means of slides into standard (19-inch) equipment racks. PRR power sources are completely short-circuit proof, due to the automatic current limiting of the ferroresonant power transformer at 125 to 150% of the rated output current.

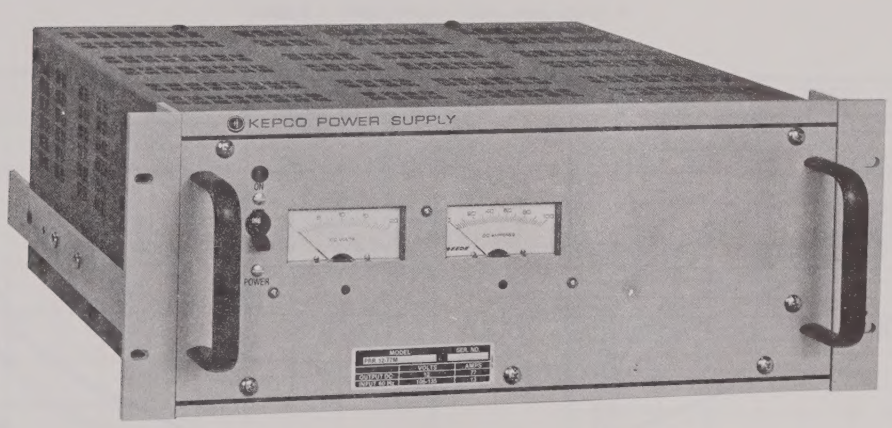


FIG. 1 KEPCO PRR POWER SUPPLY, FRONT VIEW.

SPECIFICATIONS, ELECTRICAL

A-C INPUT (PRR MODELS WITHOUT SUFFIX): 120V a-c, ±15V a-c, 60 Hz ±5%[1] single phase, 15 A max.

A-C INPUT (PRR MODELS WITH SUFFIX "–50"): 230V a-c ±30V a-c, 50 Hz ±5%[1], single phase, 6 A max.

[1] A 1% change in source frequency produces from 1 to 1.5% output voltage change.

D-C OUTPUT RANGE: See Table 1.

LOAD EFFECT: See Table 1 and applicable load effect curve in FIG. 1.

RIPPLE and NOISE: See Table 1 for maximum rms values and the graph in FIG. 2 for typical data.

SOURCE EFFECT: Less than ±1% (0.5% typical) of the rated output voltage for rated change in source voltage and at full load. At no load, the source effect is less than ±1.5%.

OUTPUT VOLTAGE ACCURACY: Within ±2%, or 0.25V, whichever is greater, of the specified output voltage, at nominal source voltage, 30°C ambient temperature, at maximum load and following a 30-minute warm-up period. Allow for an initial (cold) voltage, approximately 1% higher than the specified output voltage accuracy. The output voltage increase at output current levels less than the maximum rated may be read from the load effect curves (FIG. 1) and must be added to the nominal output level.

OPERATING TEMPERATURE: −20°C to +55°C.

STORAGE TEMPERATURE: −40°C to +85°C.

TEMPERATURE EFFECT COEFFICIENT: Less than 0.05% output voltage change per °C.

TIME EFFECT (8-hour drift): Less than 1% or 0.1 mV, whichever is greater, output voltage change.

MODEL	d-c OUTPUT		LOAD EFFECT VOLTS INCREASE		LOAD EFFECT CURVE	RIPPLE (max) RMS VOLTS	SHIP WGT.	
	VOLTS	AMPS	100%-50% LOAD	100%-25% LOAD			lbs.	kg.
PRR 12–77M	12	0–77	.75	1	1	50 mV	63	28.6
PRR 12–77M-50	12	0–62	.75	1	1	50 mV	63	28.6
PRR 24–42M	24	0–42	1.0	1.5	2	30 mV	63	28.6
PRR 24–42M-50	24	0–34	1.0	1.5	2	30 mV	63	28.6
PRR 28–36M	28	0–36	1.0	1.5	2	25 mV	63	28.6
PRR 28–36M-50	28	0–29	1.0	1.5	2	25 mV	63	28.6
PRR 48–22M	48	0–22	1.5	2.0	3	10 mV	63	28.6
PRR 48–22M-50	48	0–18	1.5	2.0	3	10 mV	63	28.6

Models with suffix "-50" operate from 50 Hz mains.
Models without this suffix operate from 60 Hz mains.

TABLE 1 SPECIFICATIONS, PRR GROUP

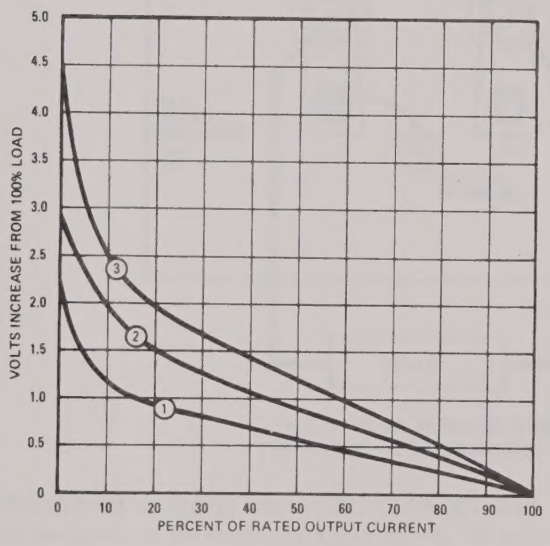


FIG. 2 TYPICAL LOAD EFFECT CURVES FOR PRR MODELS

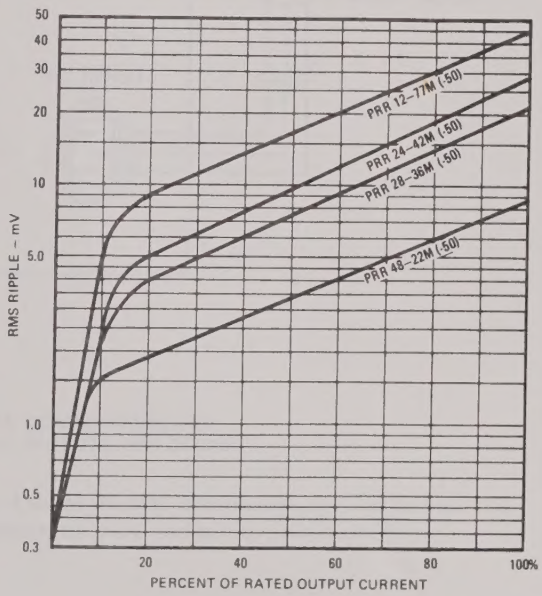


FIG. 3 TYPICAL OUTPUT RIPPLE CURVES FOR PRR MODELS.

SPECIFICATIONS, ELECTRICAL (cont'd.)

DYNAMICS

A) VOLTAGE RECOVERY TIME: The time required for the stabilized voltage to recover from a 50% step in load current to within the specified load effect band is less than 200 milliseconds.

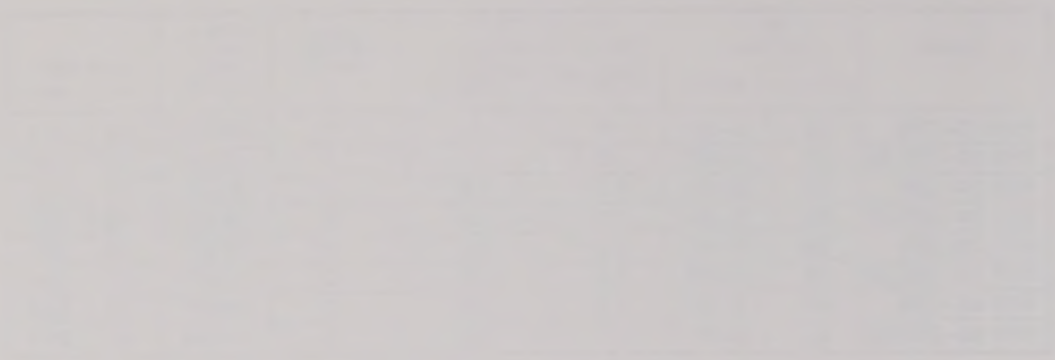
B) OUTPUT IMPEDANCE: The impedance at d-c and at frequencies below 10 KHz is a function of the load effect curves shown in FIG. 2. It may be determined from the slope of the plotted curves ($Z_O = \Delta E_O/\Delta I_O$). The output impedance at frequencies above 10 KHz can be computed by adding the effect of a 2 μH series inductance to the low frequency value found in FIG. 2.

COOLING: Built-in forced air (fan) keeps the components in the PRR at safe operating temperatures. Full output power is delivered at 55°C. NOTE: CABINET OPENINGS ON THE PRR MUST BE KEPT CLEAR OF OBSTRUCTIONS.

ISOLATION: The output of the PRR is isolated from the chassis and ground. It can be floated to a maximum of 600V (d-c or peak) off ground). The common mode current between either output and ground is less than 50 μA rms (500 μA peak to peak) at 60 Hertz.

CURRENT LIMITING: The Kepco FLUX-O-TRAN® power transformer procides automatic current limiting at 125 to 150% of the rated load current, depending on the source voltage level.

BROWN-OUT PROTECTION: The PRR power supply functions (with reduced loading capacity) with reduced a-c input source levels to 75% of nominal.



SERIES/PARALLEL CONNECTION OF PRR SUPPLIES: For increased output voltage, PRR power supplies can be connected in series up to their isolation specification (600V max). ***Identical*** PRR supplies may be paralleled for increased output current. To allow for imbalance, the total current must be derated by 10%, when connected in parallel.

STANDARDS: PRR power supplies are designed and tested in accord with NEMA Standard for stabilized power supplies, d-c output, Publication No. PY-1-1972.

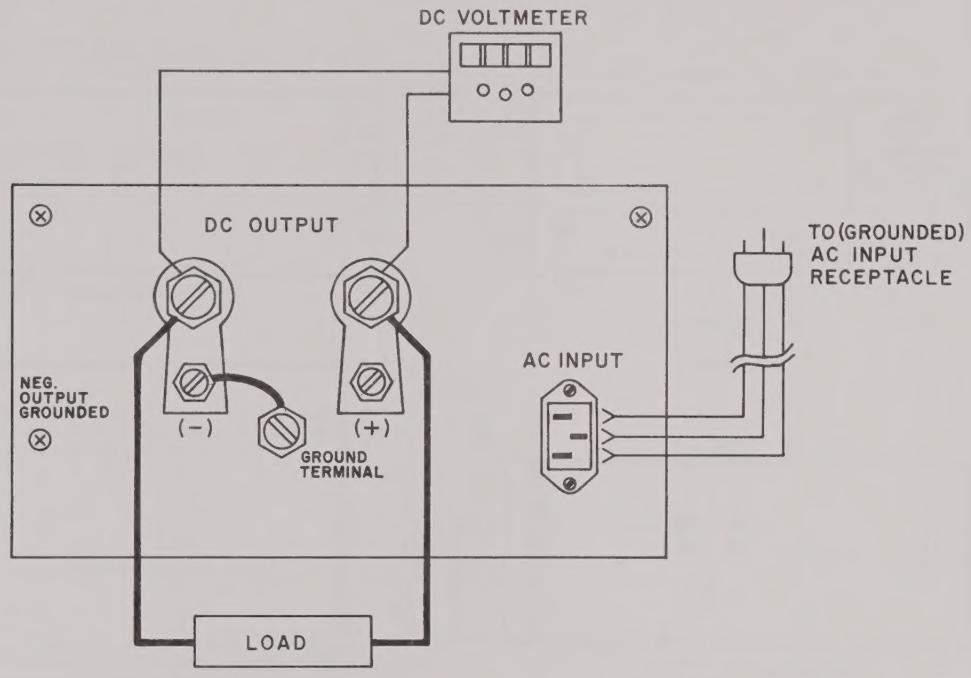


FIG. 4 REAR TERMINATIONS, LOAD CONNECTIONS AND TECHNIQUE FOR MEASURING OUTPUT EFFECTS, PRR GROUP.

REAR TERMINATIONS AND LOAD CONNECTIONS: Figure 4 shows the rear terminations, the load connections and the technique for measuring output effects. The load wires should be short, and as heavy as practicable.

GROUNDING (Safety):

WARNING

FOR SAFETY REASONS, THE CASE OF THIS POWER SUPPLY MUST BE GROUNDED AT ALL TIMES. AUTOMATIC SAFETY GROUNDING IS ACHIEVED BY USE OF THE PROVIDED 3-WIRE LINE CORD AND A SECURELY GROUNDED A-C OUTLET. IF A GROUNDED A-C OUTLET IS NOT AVAILABLE, THE CASE OF THE PRR MUST BE GROUNDED WITH A SEPARATE WIRE FROM THE PROVIDED GROUND TERMINAL ON THE PRR (SEE FIG. 4) TO A RELIABLE GROUND.

GROUNDING (Signal): For minimum ripple and noise, the PRR output/load circuit should be signal grounded as shown in FIG. 4. ***Either*** side of the output may be grounded, directly at the output terminals of the PRR as shown in FIG. 4, or at the load. If the PRR output must be operated without a ground (floating), capacitive grounding may be employed if necessary.

OUTPUT EFFECT MEASUREMENTS: The output specifications of the PRR may be verified by connecting a suitable voltmeter to the output terminals as shown in FIG. 4, and varying the a-c power line and the load over the specified ranges. The meter connection shown in FIG. 4 minimizes voltage drops due to load current flow and thus provides correct test results. Ripple specifications may be verified by connecting a suitable rms reading voltmeter in place of the d-c voltmeter.

Digitized by the Internet Archive
in 2026

https://archive.org/details/manualsplus_12147

SPECIFICATIONS, MECHANICAL

DIMENSIONS
MATERIAL
MOUNTING
FINISH

See MECHANICAL OUTLINE DRAWING, FIG. 5.

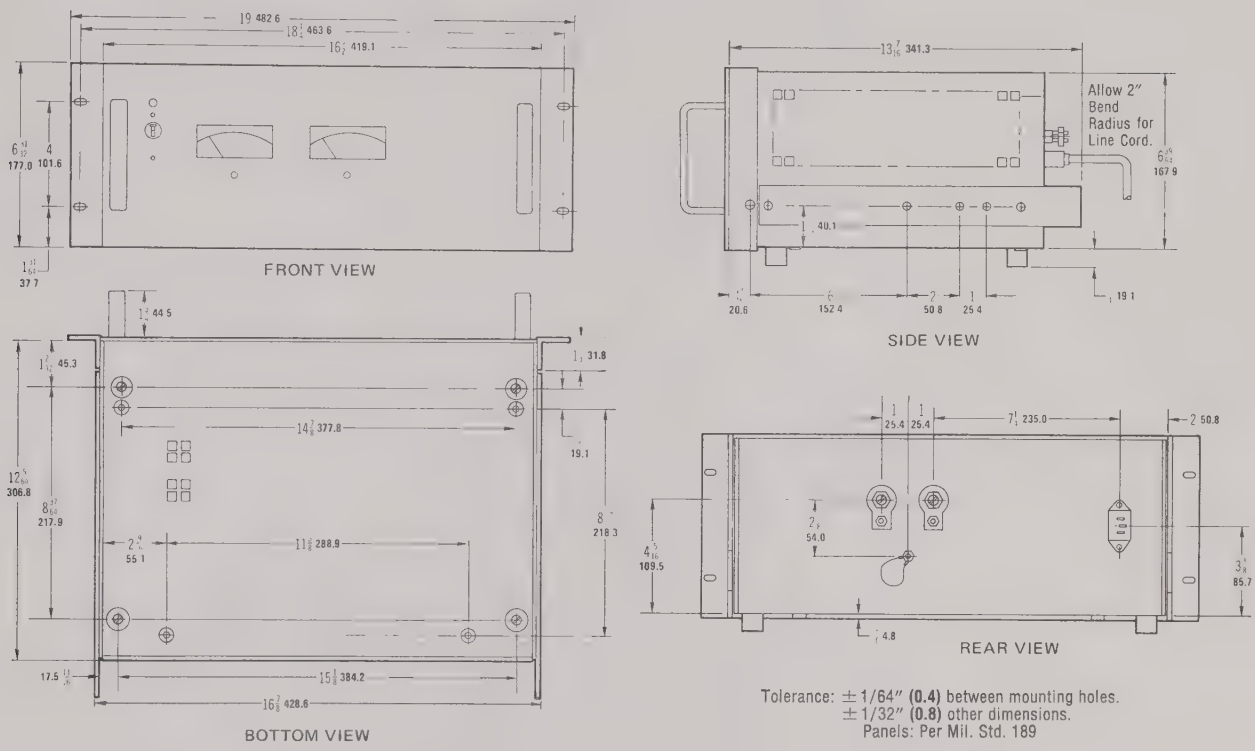


FIG. 5 MECHANICAL OUTLINE, PRR GROUP.

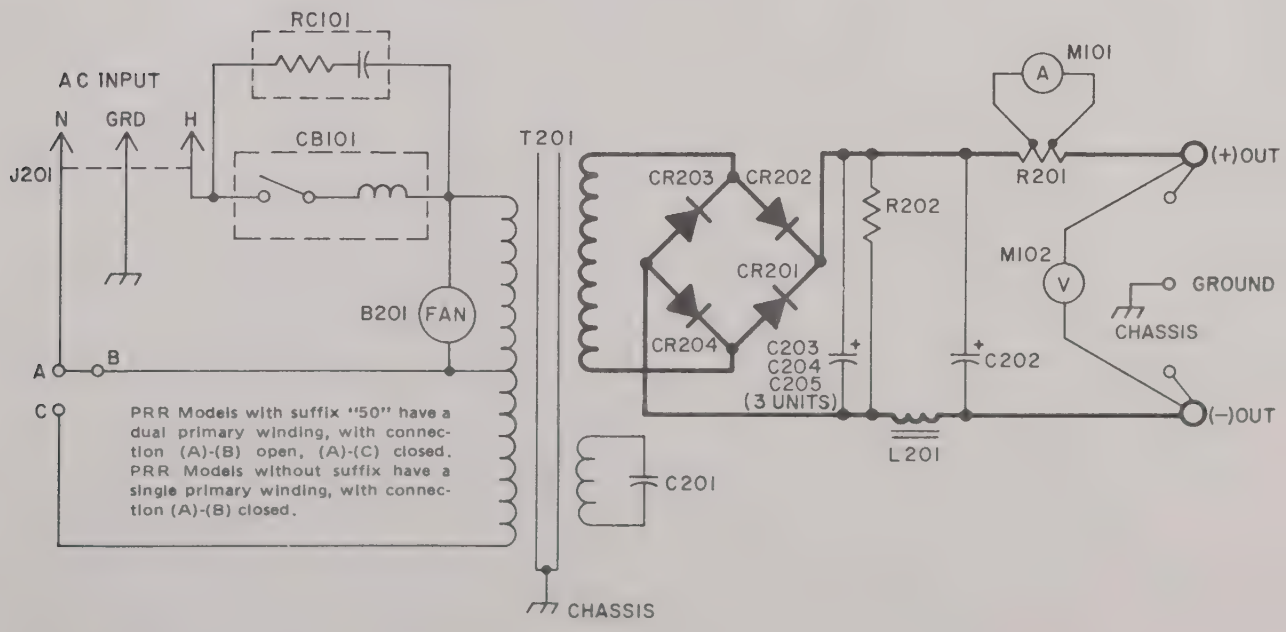


FIG. 6 SCHEMATIC DIAGRAM, PRR GROUP.

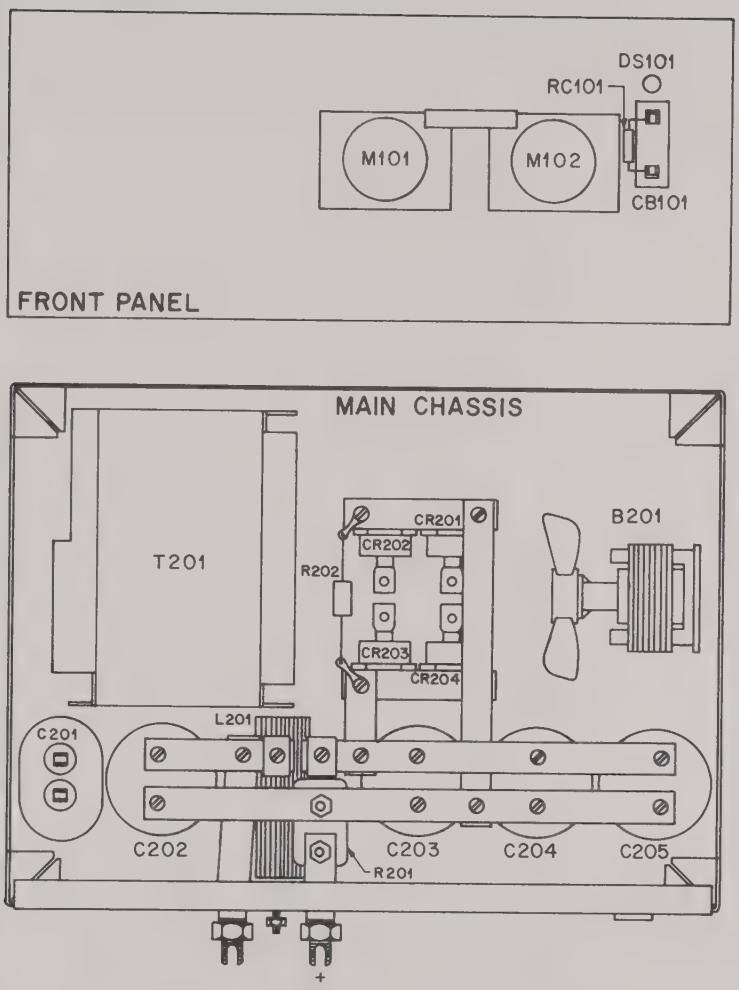


FIG. 7 COMPONENT LOCATION, PRR GROUP.

PRR 48-22M (-50) CHASSIS ASSEMBLY (A2) WITH FRONT PANEL Code 11-0977

REFERENCE DESIGNATION	QTY.	DESCRIPTION	MFRS. NAME & PART NO. SEE BOTTOM NOTE	KEPCO PART NO.	REC. SPARE PART QTY.
FRONT PANEL ASS'Y (PART OF A2) CONTAINS:					
CB101	1	Circuit Breaker/Switch Series Trip, 15A-2, 40V	Heinemann JA1-AB-A-15-10	127-0030	1
DS101	1	Front Panel Pilot Light 115V AC, Red	Industrial Devices 2100-GF-I-187	152-0087	1
M101	1	Meter, Ampere (Ext. Shunt) 0 to 30A, (50mV)	Beede Electronics Type QAW-25	135-0511	1
M102	1	Meter, Volt (0-60V) 1K ohm/V	Beede Electronics Type QAW-25	135-0514	1
RC101	1	R-C Network	Sprague Type 288P	245-0003	1
CHASSIS ASS'Y (A2) CONTAINS:					
B201	1	Fan, Motor	Howard Industries 23112	148-0027	1
N.A.	1	Fan, Blade 4 1/4", Nylon	Howard Industries 149-0023	149-0023	1
C201	1	Cap. Paper, Can, Oval 8uF, ±6%, 660V AC	General Electric Type 26F	117-0873	1
C202,203, 204,205	4	Cap., Elect., Can 40KuF, +75, -10%, 50V	Sprague Type 36DX	117-0884	1
CR201,202	2	Diode, Rect., Stud-Mtg. 200V, 15A	General Electric Type 352	124-0165	1
CR203,204	2	Diode, Rect., Stud-Mtg. 200V, 15A	General Electric Type 352R	124-0166	1
J201	1	AC Input Jack 3 Term.	Switchcraft EAC-302	143-0290	1
L201	1	Filter Choke	Kepco Magnetics 100-2086	100-2086	1
R201	1	RES., 4 Term. Type 50mV at 30A	Empro Mfr. Corp. MSA300	115-2638	1
R202	1	RES., FXD, Power, W.W. 200 ohm, 20W	Memco Type FRL-20	115-2418	1
T201	1	Transformer, Power Used only in Model PRR48-22M	Kepco Magnetics 100-2085	100-2085	1
T201	1	Transformer, Power Used only in Model PRR48-22M-50	Kepco Magnetics 100-2103	100-2103	1

NOTE: REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

KEPCO®

KEPCO, INC. • 131-38 SANFORD AVENUE • FLUSHING, N.Y. 11352 U.S.A. • (212) 461-7000 • TWX #710-582-2631 • Cable: KEPCOPOWER NEWYORK

#146–0045 · Printed in U.S.A.